

REMARKS

Claims 1 - 15 and 23 - 27 are in this application and are presented for consideration. By this Amendment, Applicant has amended claims 1 - 3 and presented new dependent claims 23 - 25 which depend directly or indirectly from claim 1. Claims 16 - 22 have been canceled. New claim 26 is similar to claim 17 but more particularly highlights important aspects of the invention. New claim 27 includes features from canceled claims 18 and 22.

Claim 2 has been rejected as being indefinite. Applicant has now corrected this claim such that it is clear and definite. Applicant wishes to thank the Examiner for the careful reading of the claims and for the helpful comments.

Claims 1 - 8, 17 - 20 and 22 have been rejected as obvious based on the teachings of McNamee (U.S. 3,934,902) in view of Aoki et al. (U.S. 6,595,473). This rejection is based on the position that the addition of a curved extension on the holding area of McNamee would be obvious based on the teachings of Aoki et al.

The rejection further takes the position that the holding part is not a part of the claimed invention. However, Applicant notes that the holding part is a recited feature in each of claims 17 and 22 and has always been claimed for example in claim 3. Further, there are important differences between the invention and the prior art.

Revised claim 1 and other claims presented including new claim 26 highlight the important characteristics of the invention wherein a flexible hose is connected for example to a robot arm. The holding part which forms part of the invention is normally fixed at one

moving part of the robot, for example the robot arm whereas the remote end of the flexible hose is connected to a working tool, for example a welding tool. The working tool is connected to the flange at the robot hand and accordingly is turnable about 3 axes with regard to the robot part to which the holding device of the invention is connected.

During the movement of the working tool there are displacement and rotative movements exerted with regard to the end of the flexible hose, which is connected to the holding area of the holding and support element, which is also referred to as the spherical bush (namely a bush with arcuate or sphere based curves). This holding and support element or spherical bush is connected to the clamp structure or holding part which is fixed for example to the robot. The invention provides structure which prevents friction between the end of the hose connected to the holding area.

The end of the flexible hose connected to the holding area is not frictionally movable with respect to the holding and support element except in the support region. This is highlighted in new claim 1 wherein it is noted that the flexible hose is connected non-rotatably (connected so as to not relatively rotate) to the holding area, whereas the holding area (part of the spherical bush or holding and support element) is rotatably connected to the holding part (or clamp - 6). Accordingly, any friction causing relative movement between the flexible hose and the holding area (spherical bush/holding and support element) is prevented. The structure only allows movement between the holding area of the flexible hose and the holding part. This is noted in the specification for example at page 2 lines 23 - 27 wherein it is noted that the hose is allowed to roll on the support area and rotary movement only takes place between the

clamping member (also referred to as the holding part (6) and the holding portion/support portion).

The prior art as a whole including McNamee and Aoki et al. fail to suggest the combination claimed.

McNamee discloses a holding part for receiving corrugations of corrugated tubing. Aoki et al. discloses a holding part as shown in Fig. 2 with two grabbing parts that engage recesses of a corrugated tube 2 and also discloses flange parts 83, 84, 85 and 86 (Fig. 6 or French part 65 (Fig. 4) fourth and third embodiments respectively). However, the references fail to suggest the combination of features including the interaction of the holding area/support area with the holding part and with the tube as claimed.

Claims 1, 3 - 7, 9, 17, 19, 20 and 22 have been rejected as being obvious based on the teachings of Berger in view of Aoki et al. Berger is quite distant from the subject matter of the present invention. Berger simply provides a pipe collar or pipe fitting. Berger combined with Aoki et al. fail to provide any suggestion as to the combination of features claimed.

Claims 1 - 7, 9 - 11, 15, 17 - 20 and 22 have been rejected based on Sasa et al. (U.S. 4,907,830) in view of Aoki et al. Sasa et al. discloses a fluid coupling for terminating a corrugated tube to a cylindrical coupling body 1. As with the other rejections, the combined references fail to teach and fail to suggest the combination of features claimed.


Claims 12 - 14 have been rejected as being obvious based on Sasa in view of Aoki et al. as discussed above in view of Heimann et al. (U.S. 2,547,263) and Wurzel (U.S. 3,464,307).

Although the secondary references disclose particular aspects of the combination, the

references as a whole fail to suggest the combination of features as claimed. The prior art does not direct the person of ordinary skill in the art toward the combination. For example, although Aoki et al. has a rotating member 101 arranged in a fixing tool 103, the expanding part (curved wall 65) is not connected to the rotating member 101 but to the fixing tool. As such, when movements are exerted to the tube 32 this moves frictionally with regard to the curved wall 65 and the flat portion 80 of the fixing tool 103, 104. Any such friction is prevented by the invention as the holding area and the expanding support area according to the invention form an element or structural component which the hose does not move relative to but wherein movement is possible based on the holding area/support area to holding part connection. With Aoki et al. wear will result based on the relative movement of the structures. Berger et al. provides no suggestion as to the invention and really has nothing to do with the subject of the present invention. FR 1 286 787 has a part 3 holding the hose 11 that is not rotatably supported in the clamping device 2 that is frictionally held in the basic body 1 to which the clamping part 2 is screwed. As such, this is also not free to rotate with regard to the basic body 1. As such the holding part 3 is not rotatably relative to the holding part 2 but is rotatably fixed to the holding part 2. There is no rotatable bearing of the hose in the fixing part 2.

The features according to the invention are neither taught nor suggested by the prior art as a whole. Accordingly, Applicant respectfully requests that the claims be favorably considered as now presented.

Respectfully submitted
for Applicant,

By: 
John James McGlew
Registration No. 31,903
McGLEW AND TUTTLE, P.C.

JJM:jj/tf
71129.10

DATED: August 18, 2005
BOX 9227 SCARBOROUGH STATION
SCARBOROUGH, NEW YORK 10510-9227
(914) 941-5600

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